EARTHQUAKE SHAKING POTENTIAL MAP FOR PORTIONS OF EASTERN CALIFORNIA AND WESTERN NEVADA

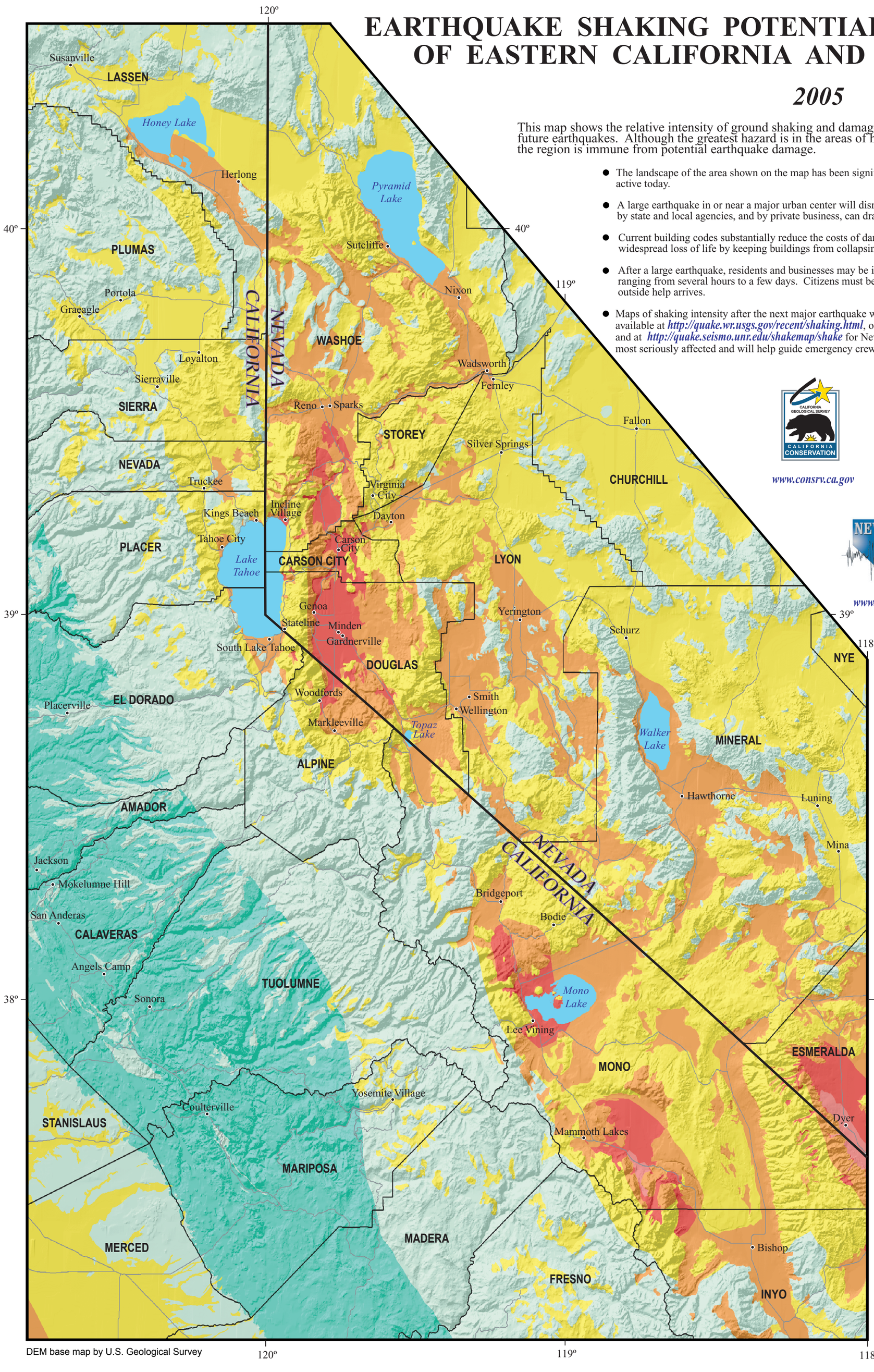
2005

This map shows the relative intensity of ground shaking and damage in parts of California and Nevada from anticipated future earthquakes. Although the greatest hazard is in the areas of highest intensity as shown on the map, no area within the region is immune from potential earthquake damage.

- The landscape of the area shown on the map has been significantly shaped by faulting and erosion. These processes are still active today.
- A large earthquake in or near a major urban center will disrupt the economy of the entire region. Effective disaster planning by state and local agencies, and by private business, can dramatically reduce losses and speed recovery.
- Current building codes substantially reduce the costs of damage from earthquakes, but the codes are intended only to prevent widespread loss of life by keeping buildings from collapsing, not to protect buildings from damage.
- After a large earthquake, residents and businesses may be isolated from basic police, fire and emergency support for a period ranging from several hours to a few days. Citizens must be prepared to survive solely on their own, and to help others, until outside help arrives.
- Maps of shaking intensity after the next major earthquake will be available within minutes on the internet. The maps will be available at *http://quake.wr.usgs.gov/recent/shaking.html*, or at *http://www.cisn.org/shakemap/nc/shake* for northern California and at *http://quake.seismo.unr.edu/shakemap/shake* for Nevada. The maps will help identify areas most seriously affected and will help guide emergency crews to the most damaged regions.

www.consrv.ca.gov www.seismic.ca.gov www.oes.ca.gov www.usgs.gov

www.seismo.unr.edu www.nbmg.unr.edu/nesc www.nbmg.unr.edu



DEM base map by U.S. Geological Survey

Level of Potential Shaking

These regions are near major, active faults and will on average experience stronger earthquake shaking more frequently. This intense shaking can damage even strong, modern buildings.

Increasing intensity

These regions are distant from known, active faults and will experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking here.

County boundaries

Highways

Water

Seismic Shaking Hazard calculated by the California Geological Survey from the USGS/CGS seismic hazards model (Frankel and others, 2002) considering amplification in near surface soils as shown by Wills and others (2000)in California and estimated by C. DePolo of UNR using geology from Stewart and Carlson (1978) for Nevada. Amplification factors recommended by the Building Seismic Safety Council (1997) used to modify ground motion calculated for rock to values appropriate for the local geologic conditions.

References Cited

Building Seismic Safety Council, 1997, 1997 Edition, Recommended Provisions for Seismic Regulations for new buildings and other structures, part 1, provisions, FEMA 302: Building Seismic Safety Council, Washington D.C., 334 p.

Frankel, A.D., M.D. Petersen, C.S. Muller, K.M. Haller, R.L. Wheeler, E.V. Leyendecker, R.L. Wesson, S.C. Harmsen, C.H. Cramer, D.M. Perkins, and K.S. Rukstales, 2002, Documentation for the 2002 Update of the National Seismic Hazard Maps: U.S. Geological Survey Open-File Report 02-420, 33 p.

Stewart, J.H. (compiler); Carlson, J.E. (compiler); Raines, G.L.; Connors, K.A.; Moyer, L.A.; Miller, R.J., 2003, Spatial digital database for the geologic map of Nevada: U. S. Geological Survey Open-File Report 03-0066, 32p.

Wills, C.J., M.D. Petersen, W.A. Bryant, M.S. Reichle, G.J. Saucedo, S.S. Tan, G.C. Taylor, and J.A. Treiman, 2000, A site conditions map for California based on geology and shear wave velocity: Bulletin of the Seismological Society of America, v. 90, no. 6b, p S187-S208.

0 10 20 Miles

0 10 20 Kilometers

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